

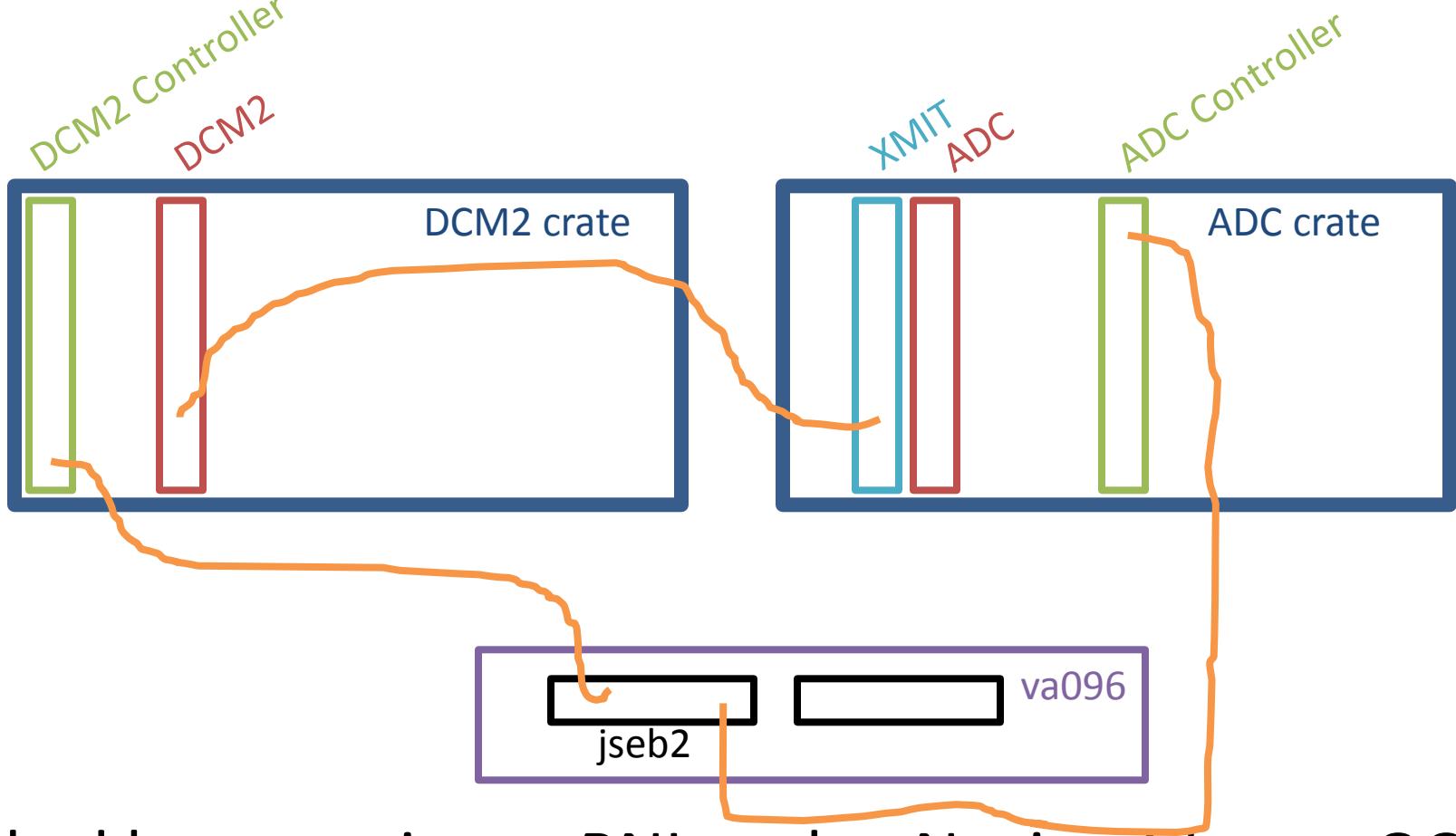
Digitizer Update

Sarah and Ed

sPHENIX Electronics Meeting

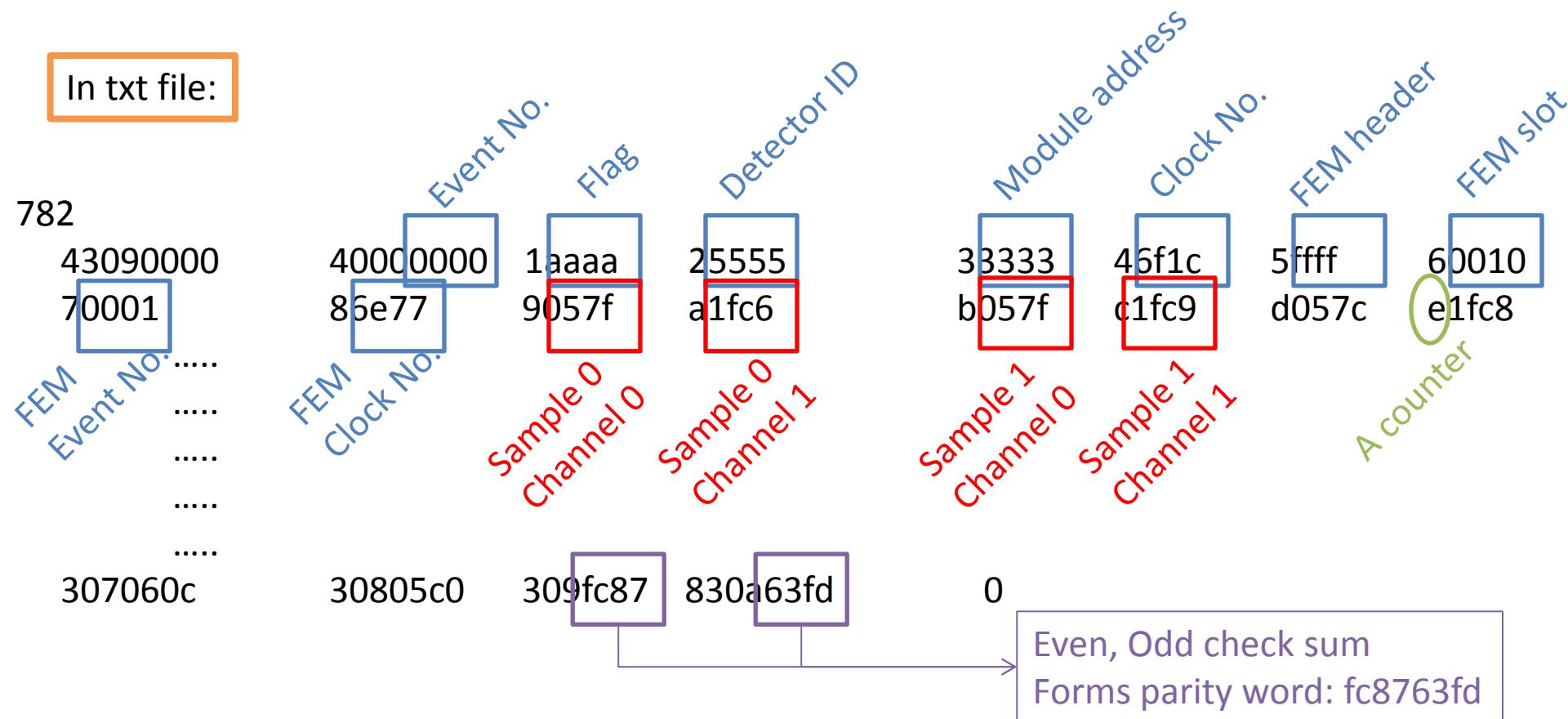
11/30/2016

Simple XMIT readout



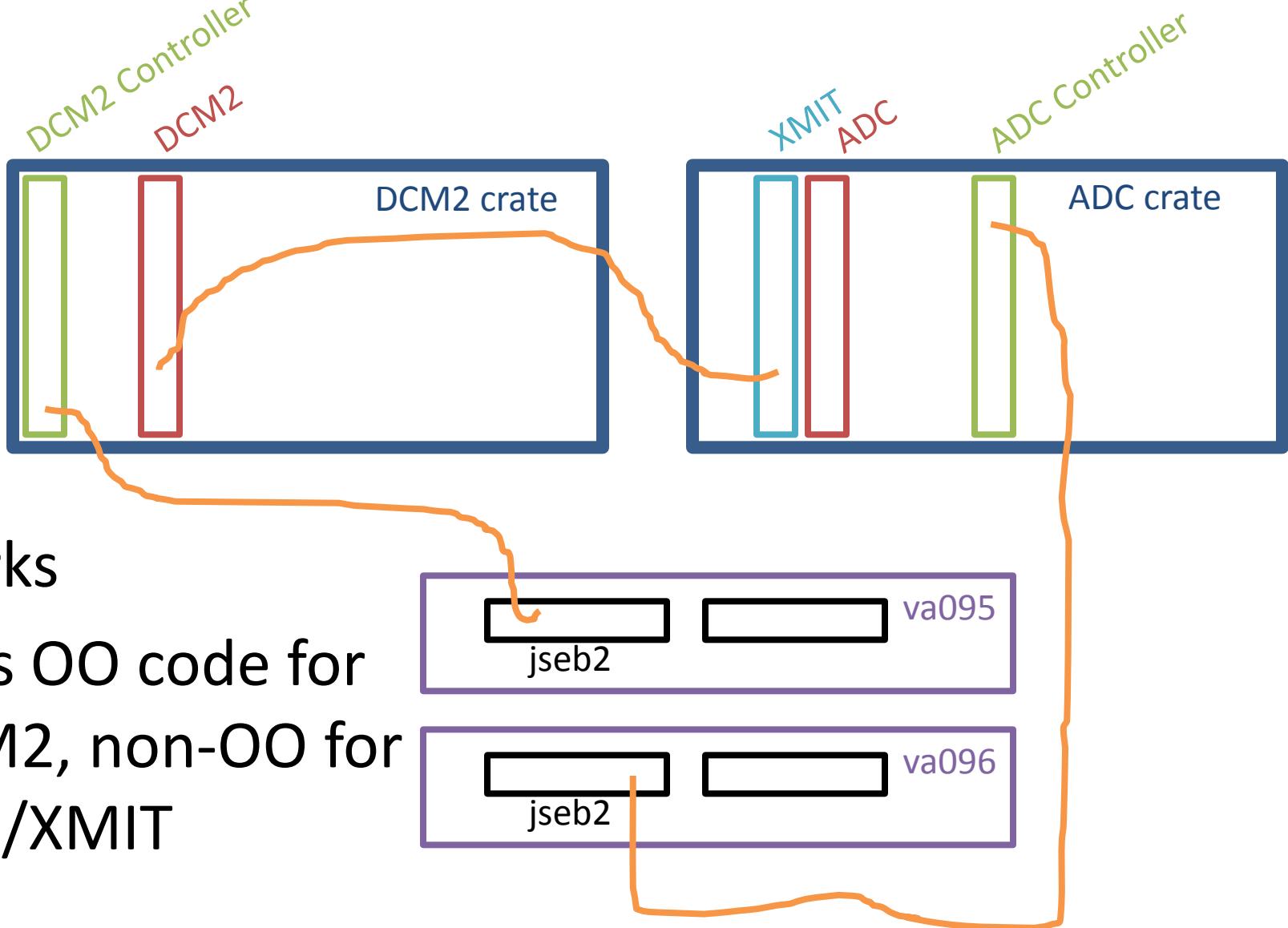
- Worked last meeting at BNL and at Nevis with non-OO code
 - No DCM2 Partitioner
 - Output generic txt format, not PRDFF

Generic data format of txt file



With 12 samples

A middle step



How this is done

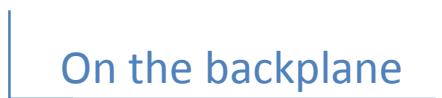
sphenix_adc_test_xmit_dcm code
on va96



JSEB2 on va96



ADC controller



ADC board

XMIT board

adcserver code
on va95



JSEB2 on va95



DCM2 controller



fiber

DCM2 board

PRDF file

Can also be run on va96

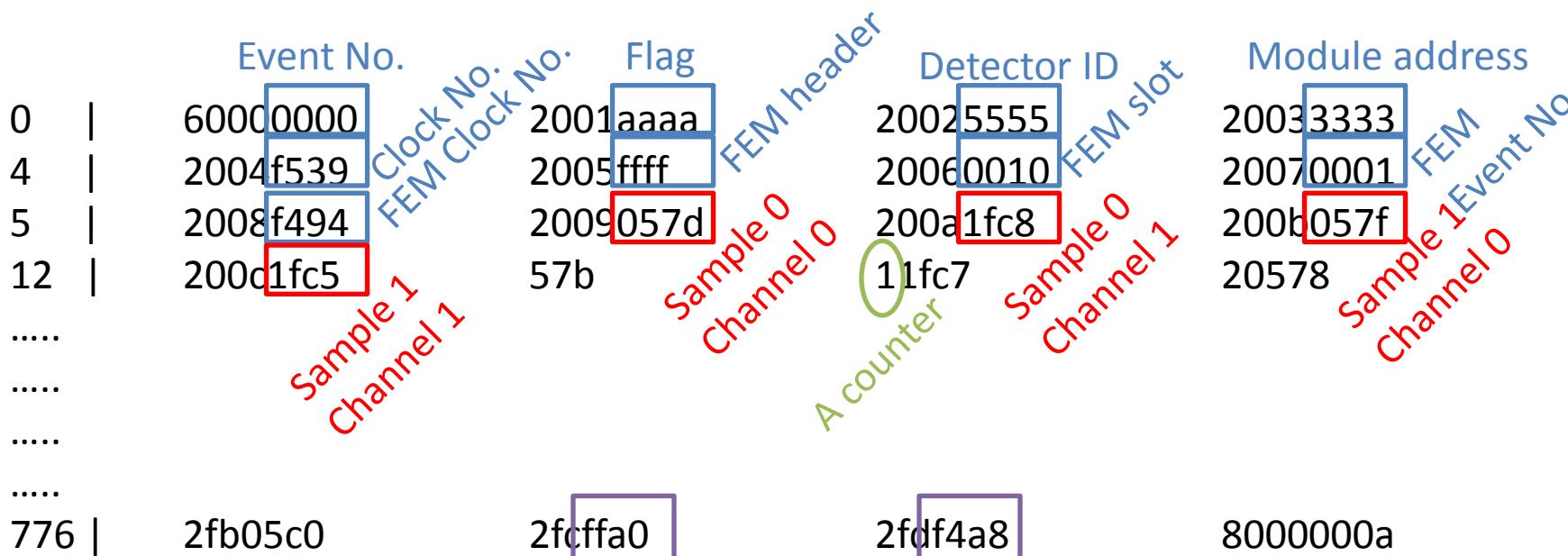
Generic data format of PRDF file

In PRDF:

output from:

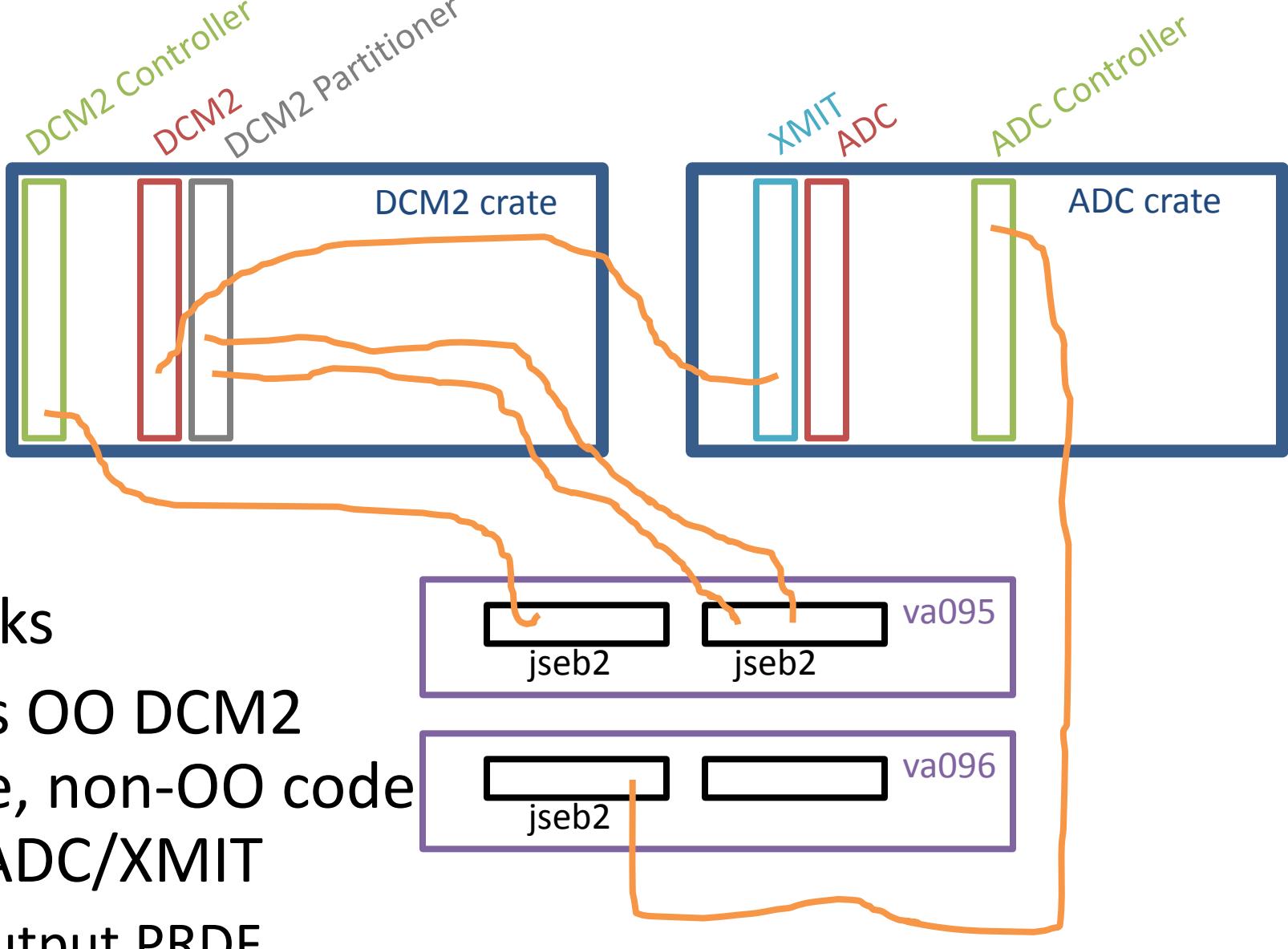
ddump -i -p 21351 -f filename

-- Event 0 Run: 267267531 length: 802 frames: 1 type:1 (Data Event) 1480343949
Packet 21351 786 0 (Unformatted) 0 (UNKNOWN)



With 12 samples

PHENIX-like readout



Parity errors

- Compare check sum values in read data to calculated check sum of read data content
 - Values in data stream → last lower 4 values for last 2 entries in read data
 - Calculated check sum → in for loop over read data content, $\text{parity} = \text{parity} \wedge (\text{even value} \ll 16 + \text{odd value})$
- Test over 100 events with $N_{\text{sample}}=31$
 - → got 4 errors
- Need to see if how baseline data looks with/without parity errors
 - → need decoder

Todo

- Check for rate of parity (checksum) errors and what error condition data looks like → In progress
- ~~Extend sample size from 12 to 31~~ → Done
- Documentation
 - Wiki page on generic prdf data format
 - What code to use
 - ~~– Put code in github~~ → Done
 - Registers and initialization routine
- Decoder
 - Compare st dev and sigmas, make plots of data
- Run with pulses → L1 delay, external trigger rate
- Run with 2 ADC boards → has been done at Nevis

Schedule

- Do all pulse related work before 12/15
- Move to high-bay 12/15
 - Check system functions well after move ~12/15, 12/16 (baseline tests, standard deviations, etc)
- Readout HCal prototype ~12/19?

Backup

Side note from last week

- Fixed the noise issue in baseline studies
 - The fiber cable plugged into the ADC controller/va96 was damaged.
 - Replaced and no issue since.

